

REMARKS

Pending Claims

Claims 1-9 have been amended and are currently pending.

Priority

Applicants appreciate the Examiner's acknowledgment of the claim for priority and receipt of the priority document.

Information Disclosure Statement

Applicants appreciate the Examiner's acknowledgment of the Information Disclosure Statement filed on September 23, 2003.

35 U.S.C. §§102 and 103

Applicants request reconsideration of the rejection of claims 1, 2, 4, 5, 8 and 9 under 35 U.S.C. § 102(e) as being anticipated by Mori et al., U.S. Patent 6,433,882 (Mori); claim 3 under 35 U.S.C. § 103(a) as being unpatentable over Mori in view of Mitani, U.S. Patent 5,737,503; claim 6 as being unpatentable over Mori in view of Barada et al., U.S. Patent 6,330,072 (Barada); and claim 7 as being unpatentable

over Mori et al. in view of Nakagiri, U.S. Patent 6,493,099.

According to the present invention, as shown in Fig. 3, a printer driver 15a5, in conjunction with a program for print control P, as shown in Fig. 4, has a print data acquisition module m1 that controls the operation to acquire print data, created under the APL 15a3 from the GDI 30, for example. The print driver also includes an intermediate file creation module m2 that controls the operation to create one or more intermediate files of the acquired print data and these files are temporarily stored into the hard disk 15a. At this time, the intermediate file or files are created so as not to be so large beyond certain bounds in file size. The environment setting module m4 enables the hardware to receive a user-preference setting of the bounds to file size, in one embodiment, and supply the setting to the intermediate file creation module m2. In another embodiment, bounds are set depending on the free space in the memory.

Further, as shown in Fig. 3, an actual-data-for-printing creation module m3 of the print driver controls the operation to properly retrieve the contents of the intermediate file or files temporarily stored into the hard disk 15a, execute image

processing and create actual-data-for-printing that is output to the printer 20a. In this regard, the actual-data-for-printing is created based on various print parameters set under the control of the print parameters setting module m5.

With reference to Fig. 6, the print data D1 created by the APL 15a3 is delivered via the GDI 30 to the printer driver and replaced by instructions to draw that are intermediate code stored into the one or more intermediate files. Intermediate file creation module m2 controls a computer 10 to replace the print data D1 by the instructions to draw. The instructions to draw are composed of various units to draw and the intermediate file creation module m2 replaces each print command by the corresponding unit to draw and creates one or more intermediate files D2. The structure of an intermediate file D2 is similar to the structure of the print data D1. For example, the print data D1, which consists of line data in the example shown in FIG. 7, has its print commands replaced by a plurality of corresponding units to draw.

The print data (instructions to draw) that replaced the previous print data is divided into parts of data having a

file size that falls within certain bounds in the creation of the intermediate files D2. If the print data comprises a plurality of pages to print, it is divided so that page-by-page printing can be performed and the intermediate files D2 of divisional print data are created for each page. Each of the independent claims, therefore, have been amended to set forth that in the intermediate file creation step, acquired print data of a page is divided into parts.

As an example given in the specification, an intermediate file of print data may be 1 gigabyte (GB) in size and the intermediate file that is created is set to be within the bounds of 256MB. Accordingly, the print data is divided into at least four intermediate files because  $1024/256 = 4$ . The created intermediate files (D2) are temporarily stored into the hard disk 15a, and are read by the printer driver 15a5 into the RAM 14 and converted into RGB bitmap data D3. Then, actual-data-for-printing D4 is created. Under the control of the actual-data-for-printing creation module m3, the contents of the intermediate files D2 are read in turn into the RAM 14; that is, simultaneous reading of the two or more files into the RAM does not occur. Based on the instructions to draw

included in the intermediate files D2, conversion to bitmap data is executed, thereby creating RGB bitmap data D3.

The specification sets forth that the printer 20a used in the preferred embodiment of the present invention is assumed to be of a large type. Accordingly, the page print area 201 within which a page is printed on paper 200 is partitioned into a plurality of zones which are referred to as bands 202 as shown in FIG. 10. Thus, a plurality of pieces of RGB bitmap data D3 corresponding to the bands 202 are created under the control of the actual-data-for-printing creation module m3.

With the actual-data-for-printing creation module m3, a record list is created in which the above intermediate files are created to correspond to the plurality of bands 202 so that reference can be made to the intermediate files D2 corresponding to the bands 202. For example, the print data D1 may be a set of line data, and then the units to draw U1 to U6 are straight lines and are printed within the print area 201 shown in FIG. 11. In this example, the print data of one page is divided into three intermediate files F11 to F13. Then, a record list R1 as shown in FIG. 13 is created.

In contrast to the present invention, Mori discloses that the print data generating unit 14 is for producing, for a single job, one or more intermediate files and a command file representing control data necessary for printing the subject print job. The one or more intermediate files are called "Enhanced Meta Files" (EMFs), and each intermediate file (EMF) represents a single page's worth of image to be printed. Accordingly, the reference does not disclose dividing print data of a page into parts (intermediate files) as claimed by Applicants. Therefore, the Mori reference does not anticipate claims 1, 2, 4, 5, 8 and 9 and the 35 U.S.C. § 102(e) rejection should be withdrawn.

The secondary references of Mitani, Barada and Nakagiri do not overcome the deficiency noted in Mori and therefore none of these references in combination with Mori is sufficient to render claims 3, 6 and 7 unpatentable under 35 U.S.C. § 103(a). Further, each of these claims should also be found to be patentable for depending from a base claim asserted to be allowable for the foregoing reasons.

Conclusion

In view of the foregoing amendments and remarks, Applicants contend that the above-identified application is now in condition for allowance. Accordingly, reconsideration and reexamination are requested.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "John R. Mattingly", with a stylized flourish at the end.

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